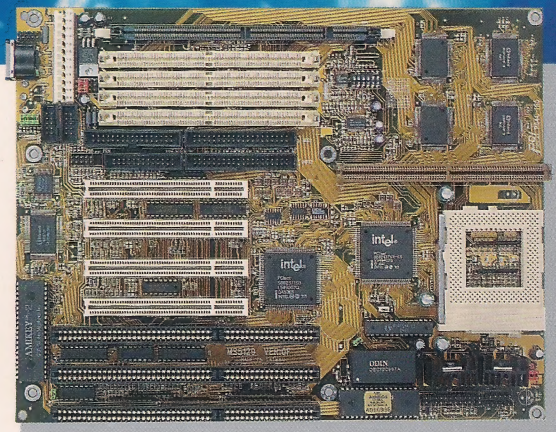
PCI

PENTIUM® TR5

MAINBOARD



USER'S MANUAL

Version 1.3

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CE

FCC-B Radio Frequency Interference Statement

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Notice 1
The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Notice 2
Shielded interface cables and A.C. power cord, if any, must be used in order to comply with the emission limits.

VOIR LA NOTICE D'INSTALLATION AVANT DE RACCORDER AU RESEAU.

Edition

March 1996

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Chapter 1

Introduction

The PCI P54C TR5 system board is a high-performance personal computer system board based on a 3.3V version of the Pentium™ microprocessor -- the P54 microprocessor. The system board supports the Peripheral Component Interconnect (PCI) Local Bus standard and provides four 32-bit PCI bus master slots

A cache subsystem can be configured for 256K or 512K cache memory to improve overall throughput.

The system board uses the highly integrated Intel 82430VX chipset to support the PCI/ISA and Green standards, and to provide the Host/PCI bridge. The 82430VX chip set integrates all system control functions

1.1 System Board Specifications

CPU:

- Socket 5 or Socket 7 supports P54C family--
  75MHz/90MHz/100MHz/120MHz/133MHz/150MHz/
  166MHz/200MHz.

Chip Set:

- Intel® 82430VX chip set.

Cache Memory:

- Supports Directed Map Organization, Write-Back cache policy.
- Supports 256K pipelined burst cache memory or 512K pipelined burst cache memory (256K on-board & 256 on cache module).

NOTE : Cache module is optional.

Main Memory:

- Supports three memory banks using four 72-pin SIMM sockets and one 168-pin DIMM sockets.
- Up to 128 Mbytes main memory.
- Supports EDO Hyper Page Mode DRAM or Standard Fast Page mode DRAM, and SDRAM.

NOTE : DIMM socket is optional.

Slots:

- Four 32-bit Master PCI Bus slots and three 16-bit ISA bus slots. One shared slot that can be used as ISA or PCI.

On-Board Peripherals:

- On-Board peripherals include:
  —1 floppy port supports 2 FDD
  —2 serial ports (ComA + ComB)
  —1 parallel port supports ECP or EPP mode

—2 PCI Bus Master IDE ports (up to four IDE HDD

Dimensions

- 28 cm(L) x 22 cm (W) x 4 layer PCB

Mounting

- 7 mounting holes

1.2 System Board Layout

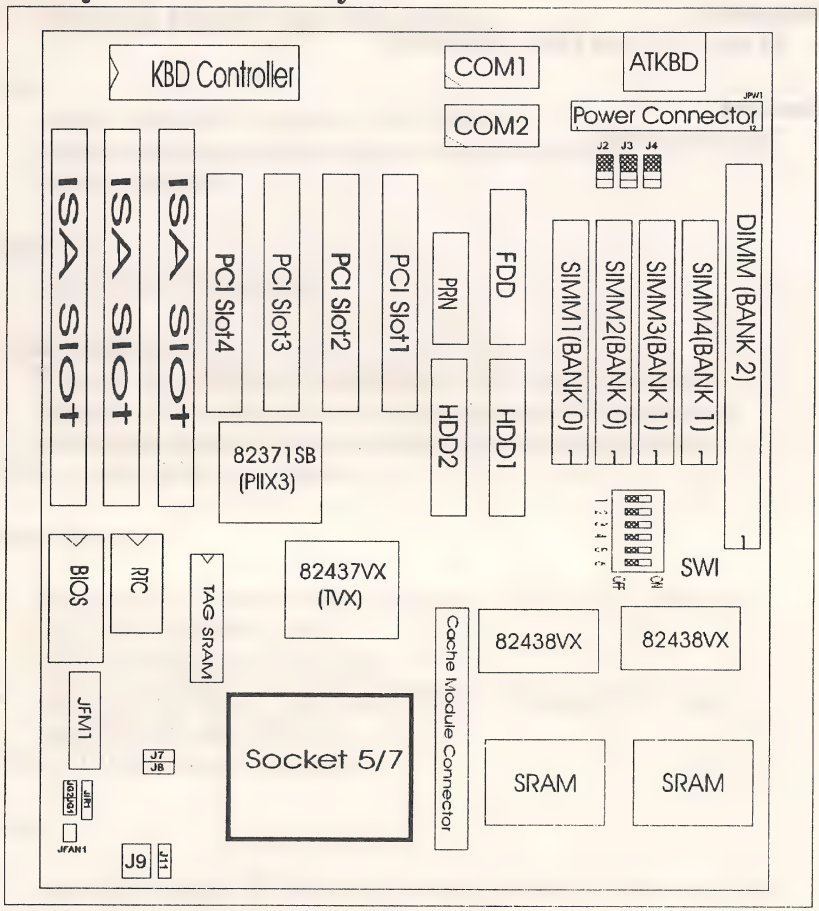


Figure 1-1

Chapter 2 HARDWARE INSTALLATION

2.1 CPU INSTALLATION

After install CPU, adjust SW1 to set CPU SPEED,J7 ,J8,J9 and J11 to set CPU voltage, and insert CPU fan power cable to JFAN1 to complete CPU installation. (See section 2.1.1,2.1.2,and 2.1.3)

2.1.1 CPU SPEED SETTING (SW1)

Adjust SW1 (Dip switch) to set CPU speed. Figure 2-1 show SW1 location.

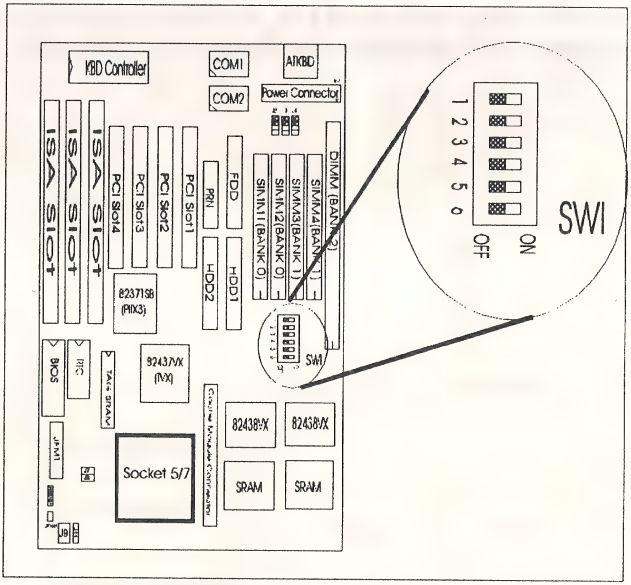
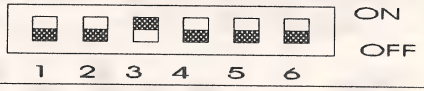
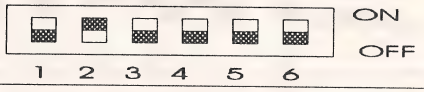
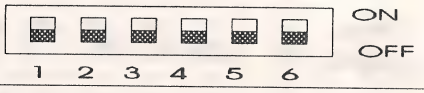
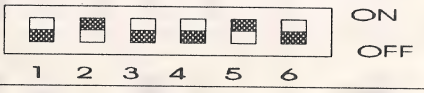
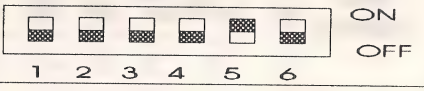
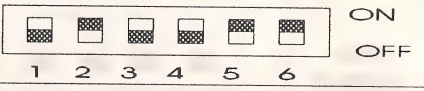
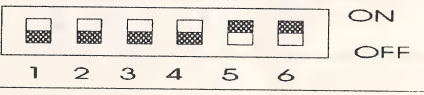
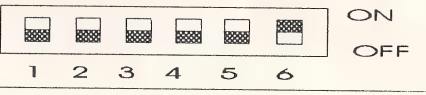
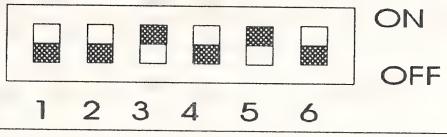
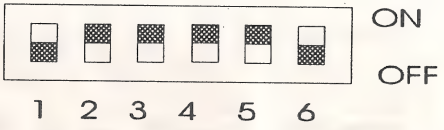
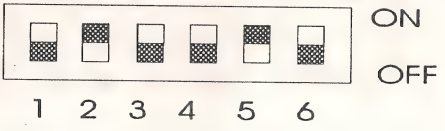
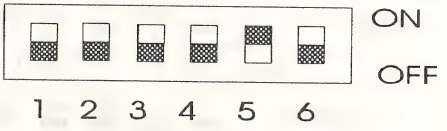


FIGURE 2-1

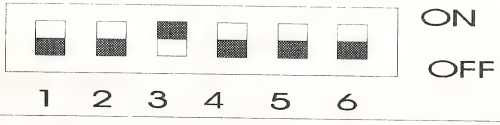
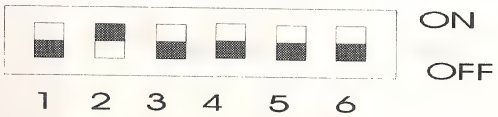
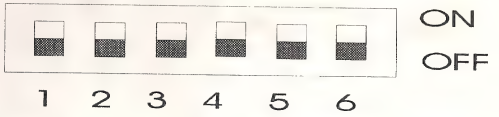
2.1.1.1 INTEL P54C CPU SPEED SETTING

CPU SPEED	SW1 Settings
75MHz	
90MHz	
100MHz	
120MHz	
133MHz	
150MHz	
166MHz	
200MHz	

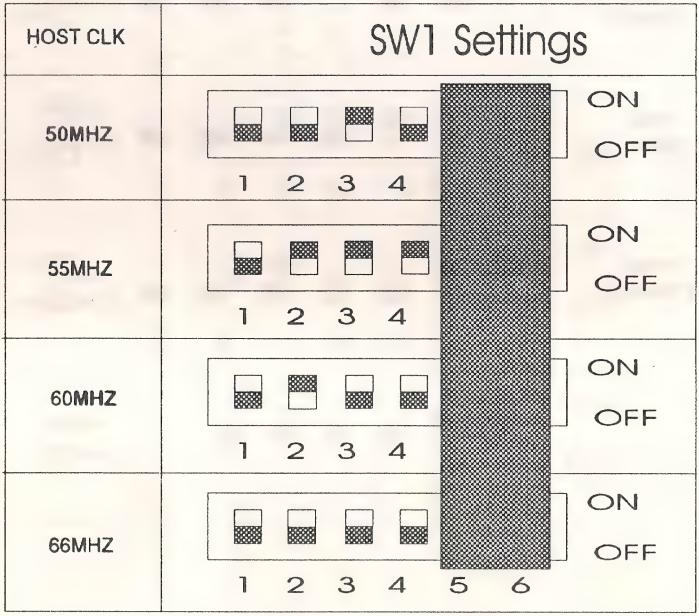
2.1.1.2 CYRIX 6x86 CPU SPEED SETTING

CPU SPEED	SW1 Settings
P120+ (100MHZ)	
P133+ (110MHZ)	
P150+ (120MHZ)	
P166+ (133MHZ)	

2.1.1.3 AMD 5k86 CPU SPEED SETTING

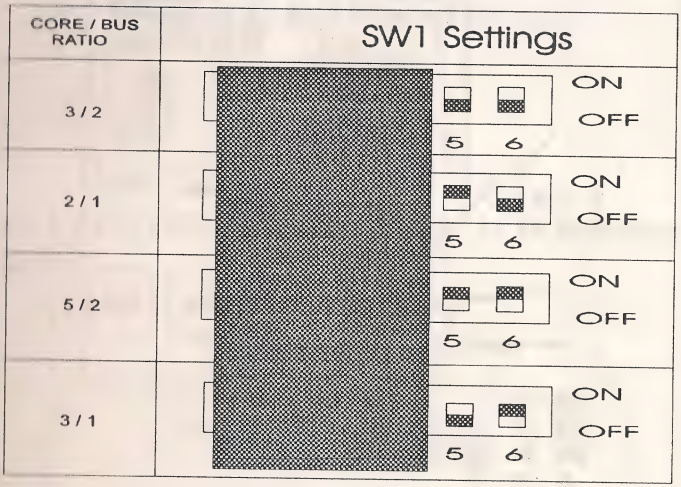
CPU SPEED	SW1 Settings
P75 (75MHZ)	
P90 (90MHZ)	
P100 (100MHZ)	

Note 1: The 4 Host Clock frequencies that the system supports are 50MHz, 55MHz, 60MHz, and 66.6MHz.(By adust SW1 pin 1,2,3,and 4). See the following chart to set the different Host Clock frequencies.



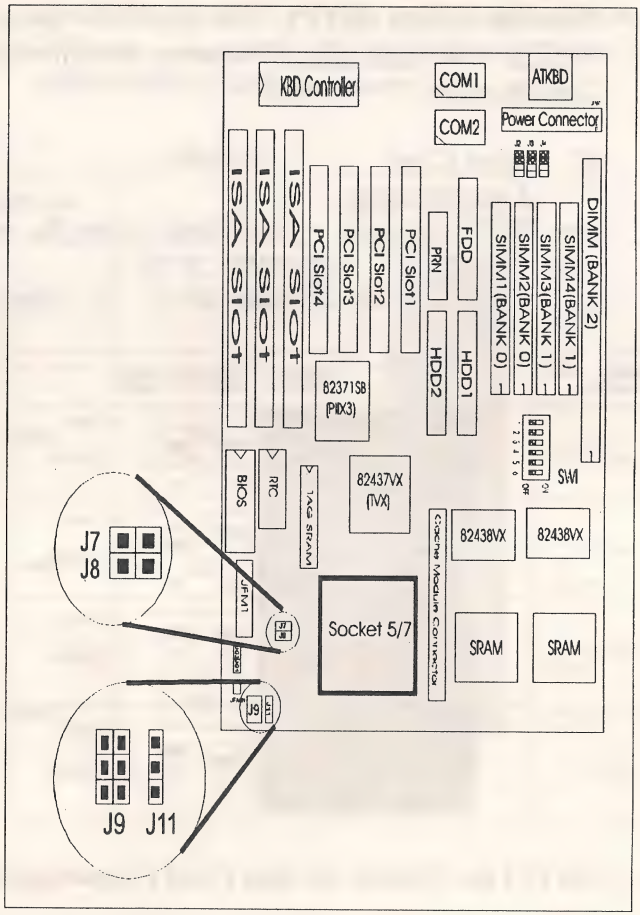
Note 2: The DIP Switch SW1 (5,6) is used to set the Core/Bus (Fraction) ratio of the CPU. The actual core speed of the CPU is the Host Clock Frequency multiplied by the Core/Bus ratio. For example:

if Host Clock = 66.6MHz
Core/Bus ratio = 3/2
then CPU core speed = Host Clock x Core/Bus ratio
= 66.6MHz x 3/2
= 100MHz



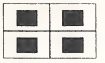
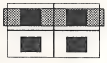
Note 3:The PCI Bus Clock is the Host Clock Frequencydivided by 2.

2.1.2 CPU VOLTAGE SETTING (J7,J8,J9,J11)

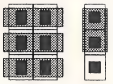


For jumpers J7 and J8 select either 3.38V or 3.5V power source for the P54C.

2.1.2.1 For P54C, J7,J8,J9,J11 setting is as below.

CPU VOLTAGE	J7,J8 JUMPER SETTING
3.38V	J7 J8 
3.52V	J7 J8 

J9,J11 JUMPER DEFAULT SETTING

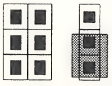


J9 J11

2.1.2.2 For P55C, VCORE=2,.8V, J7,J8,J9,J11 setting is as below:

CPU VOLTAGE VCORE	J7,J8 JUMPER SETTING
2.8V	J7 J8

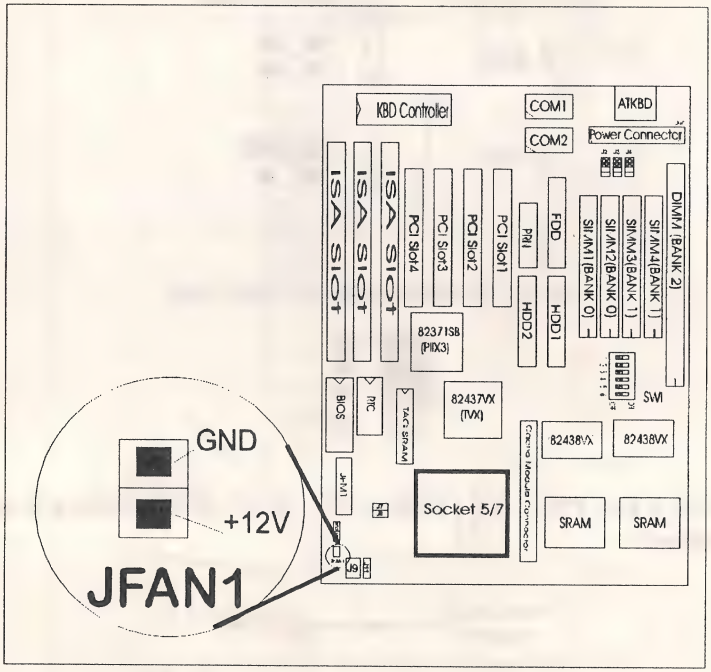
J9,J11 JUMPER DEFAULT SETTING



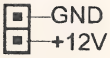
J9 J11

2.1.3 CPU FAN POWER CONNECTOR (JFAN1)

JFAN1 connector support +12V voltage for CPU fan use.



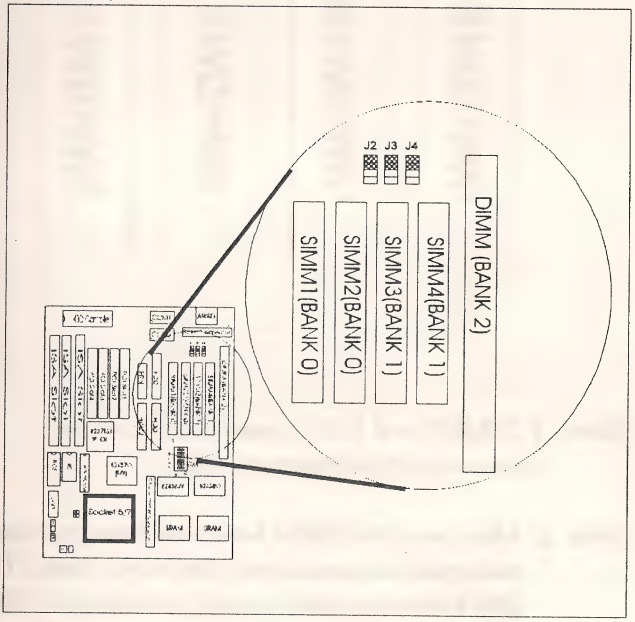
JFAN1

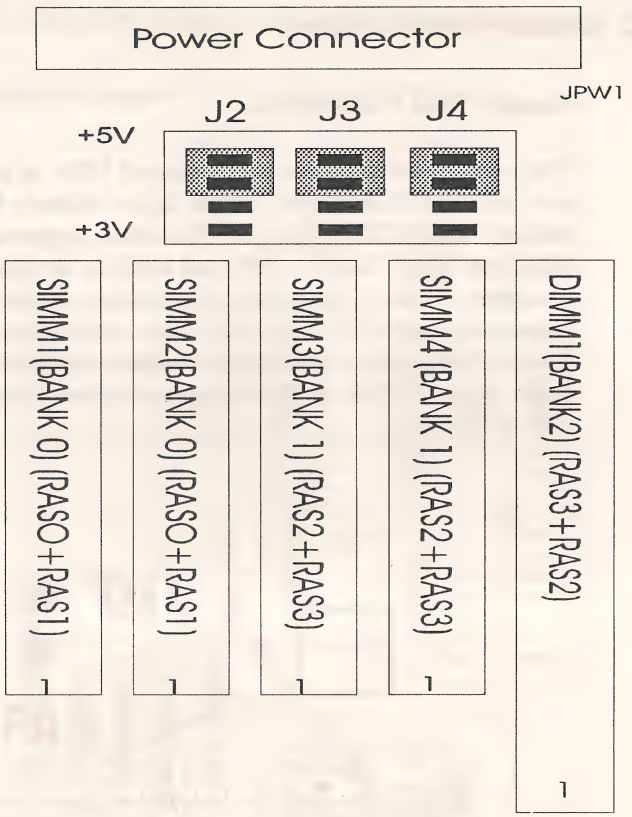


2.2 Memory installation

Memory Bank Configuration

The system board supports a maximum of 128M of memory, and provides four 72-pin SIMM (Single In-line Memory Module) and one 168-pin DIMM sockets. Each bank supports 4M, 8M, 16M, and 32MB. That is , 2MB and 16MB is the minimum and maximum for one 72-pin single side memory module respectively, and 4MB and 32MB is the minimum and maximum for one 72-pin double side memory module respectively. (This board support 4 RAS, each RAS support memory range from 4MB to 32MB.)





Note : 1 DIMM1 and 3.3V jumper (J2,J3,J4) are optional.Default setting is 5V.

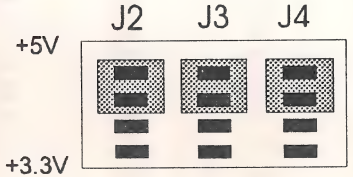
Note 2: Make sure the SIMM banks are using the same type and equal size and density memory. Both3.3V and 5V SIMM memory can be used ,but only3.3V SIMM memory should be used if DIMM memory is installed in the system.

Note3:To operate properly at least two 72-pin SIMM module must be installed in the same bank or the one 168-pin

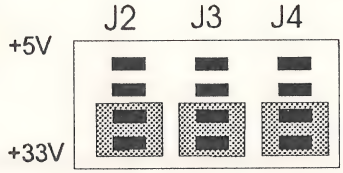
DIMM module must be installed. The system cannot operate with only one 72-pin SIMM module installed.

Note4: Only 3.3V SIMM memory should be installed at the same time as DIMM memory. Otherwise don't install SIMM memory and DIMM memory at the same time. Doing so could damage your system.

Note 5:The DIMM bank supports 3.3V EDO, 3.3V FP, and, unbuffered 3.3V SDRAM. Be sure to adust the J2,J3,J4 jumpers to the 3.3V position before installing DIMM memory.Below, describe J2,J3,J4 jumper settings on 3.3V and 5V position respectively.



+5V SETTING



+3.3V SETTING

Note 6: This mainboard supports Table Free so memory can be installed on Bank 0 (SIMM1 + SIMM2),Bank 1 (SIMM3 + SIMM4), or Bank 2 (DIMM1).

Note7: If the SIMM memory is 3.3V the following combinations are O.K. (Remember to adjust J2,J3,J4, to 3.3V settings.)

S=Single D=Double X=Not Installed

SIMM1+SIMM2 Bank 0	SIMM3+SIMM4 Bank 1	DIMM1 Bank 2
S	X	X
S	S	X
S	S	S
S	X	S
S	D	X
S	X	D
D	X	X
D	S	X
D	S	S
D	N	S
D	D	X
D	X	D
X	S	X
X	S	S
X	X	S
X	D	X
X	X	D

2.3 Cache memory configuration

Cache Selection

The system board supports 256K of cache memory on board. Suitable on board TAG SRAM are as follows:

8K X 8 SRAM	Winbond W2465AK-15
16K X 8 SRAM	Winbond W24128AK-15
16K X 8 SRAM	Winbond W24129AK-15
32K X 8 SRAM	Winbond W24257AK-15

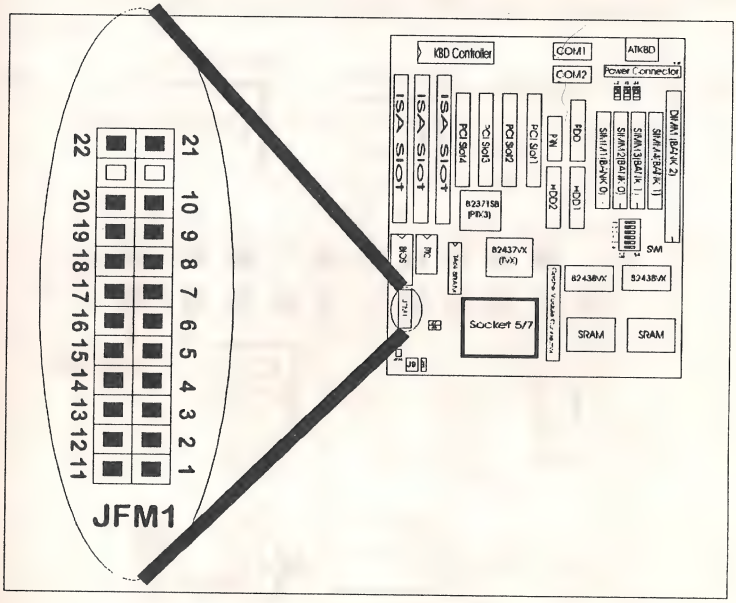
The system board can support 512K of Cache memory (256K on board + 256K Cache Module). On board suitable Tag SRAM are as follows:

8K X 8 SRAM	Windbond W2465AK-15

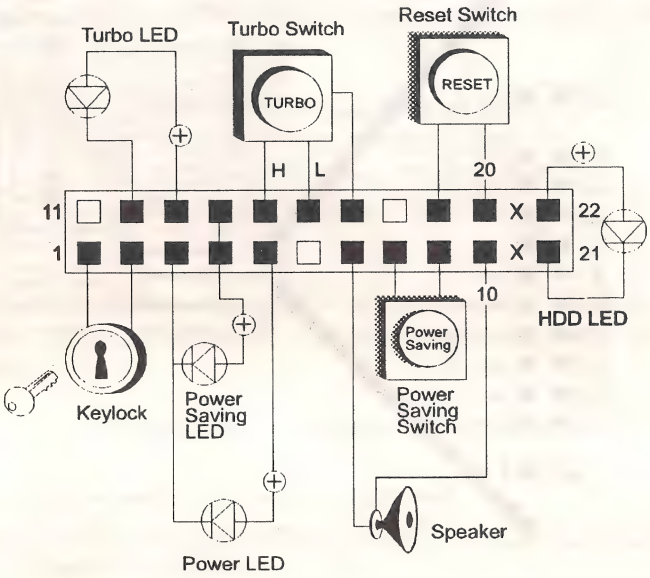
Note : Cache module connector is optional.

Note : Cache module must meet COAST spec. 1.3 or later to upgrade to 512k.

2.4 Case connector (JFM1)



The Turbo LED, Turbo Switch, Hardware Reset, Key lock, Power LED, Power Saving LED, Sleep Switch, Speaker,and HDD LED all connect to the JFM1 connector block as below.

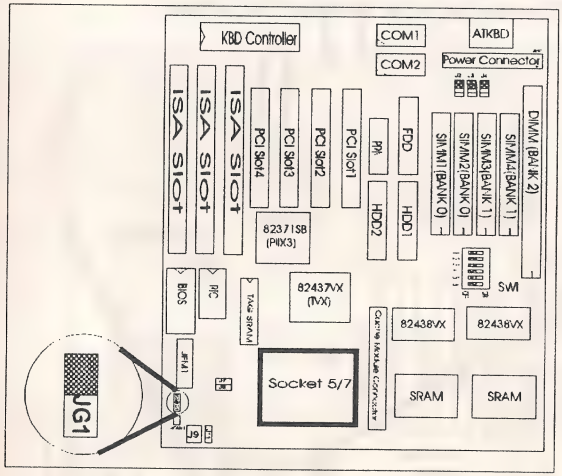


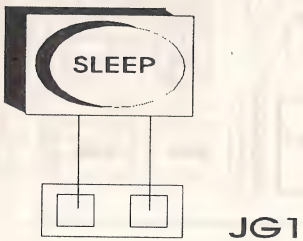
Note : The hardware Turbo switch is not functional. The Turbo LED is always ON and cannot be toggled.

2.5 Power Saving Switch Connector:

Attach a power saving switch to this connector. When the switch is pressed, the system goes immediately into suspend mode. Press any key and the system wakes up.

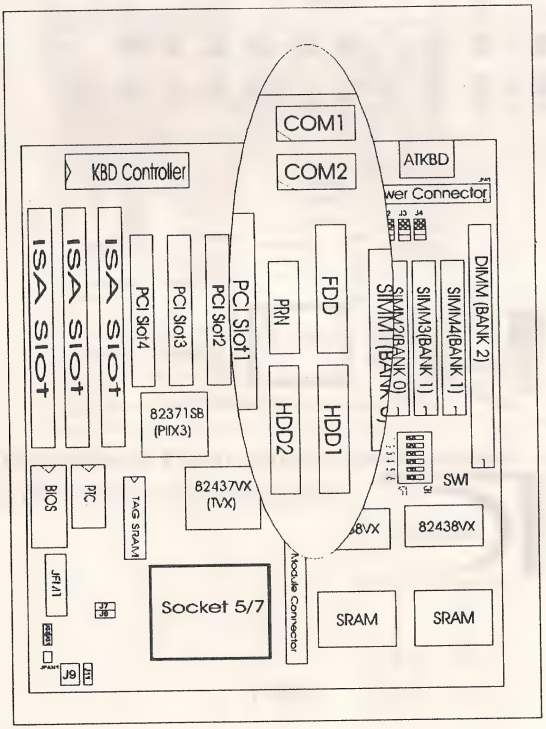
Note: you should enable the Power Management Mode (At Bios Setup) to use this function.





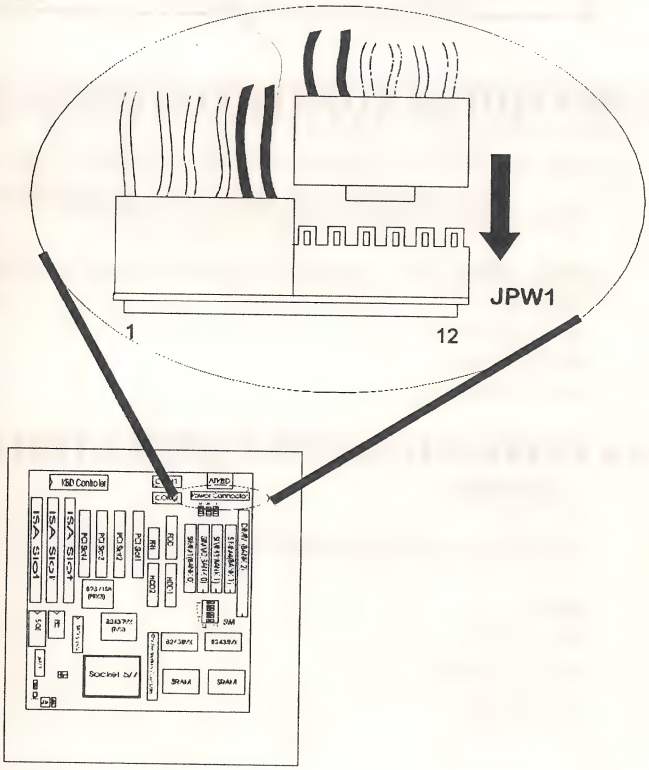
2.6 Onboard Peripheral Connector :COM1,COM2,FDD,PRN,HDD1,and HDD2

COM1 connector is for serial port COMA, and COM2 is for serial port COMB.
FDD connector is for floppy drive.
PRN connector is for parallel port LPT1,LPT2,or LPT3.
HDD1 connector is for primary IDE channel.
HDD2 connector is for secondary IDE channel.



2.7 Power Supply Connector: JPW1

Make sure to attach the connectors with the two black wires at the center, as show below.



Pin	Description	Pin	Description
1	Power Good	7	Ground
2	+5V DC	8	Ground
3	+12V DC	9	-5V DC
4	-12V DC	10	+5V DC
5	Ground	11	+5V DC
6	Ground	12	+5V DC

2.8 PS/2 MOUSE CONNECTOR (JM1)--(OPTION)

JM1 is a 5 pin connector. Below is the pin description.

pin 1 : VCC
pin 2 : NC
pin 3 : Ground
pin 4 : Clock
pin 5 : Data

2.9 KEYBOARD 1x5 PIN CONNECTOR (JK1) --(OPTION)

JK1 is a 5 pin connector. Below is the pin description.

pin 1 : VCC
pin 2 : NC
pin 3 : Ground
pin 4 : Clock
pin 5 : Data

Chapter 3 AMI BIOS USER GUIDE

The system configuration information and chipset register information is stored in the CMOS RAM. This information is retained by a battery when the power is off. Enter the Bios setup (if need) to modify this information.

Below describe how to enter bios setup , and the meaning of option.

3.1 Enter BIOS Setup

Enter the AMI setup Program's Main Menu as follows:

1.Turn on or reboot the system. The following screen appears with a serial of diagnostic check.

AMIBIOS (C) 1995 American Megatrends Inc.,

Hit <DEL> if you want to run setup

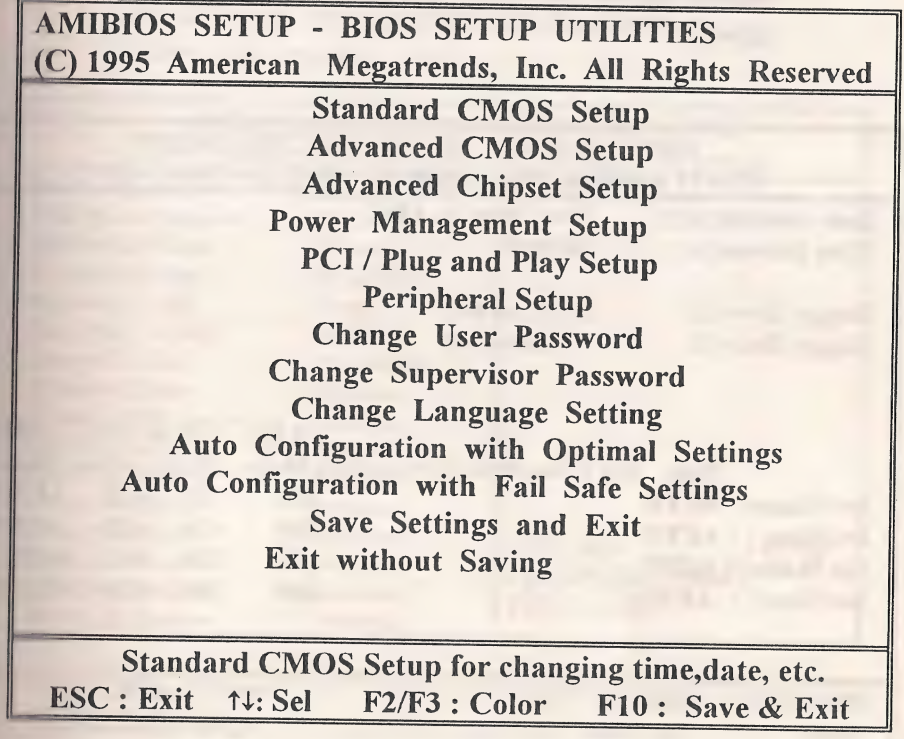
(C) American Megatrends Inc.,

51-XXXX-001169-00101111-071595-82430VX-F

2.When the "Hit <DEL>" message appears, press <DEL> key to enter the BIOS setup screen.

Note : if you don't want to modify cmos original setting, then just wait system boot up and don't press any key.

3. After press <DEL> key ,the BIOS Setup screen (as below) will display.


AMIBIOS SETUP - BIOS SETUP UTILITIES
(C) 1995 American Megatrends, Inc. All Rights Reserved
Standard CMOS Setup
Advanced CMOS Setup
Advanced Chipset Setup
Power Management Setup
PCI / Plug and Play Setup
Peripheral Setup
Change User Password
Change Supervisor Password
Change Language Setting
Auto Configuration with Optimal Settings
Auto Configuration with Fail Safe Settings
Save Settings and Exit
Exit without Saving
Standard CMOS Setup for changing time,date, etc.
ESC : Exit ↑↓: Sel F2/F3 : Color F10 : Save & Exit

4. Using the <↑> and <↓> key to move the hightlight scroll up or down.
5. Using the <ENTER> key to enter the option.

6. To exit press <ESC>. To save and exit press <F10>.

7. Section 3-2 to 3-7 will describe the option in details.

3.2 STANDARD CMOS SETUP

1. Press <ENTER> on "Standard CMOS Setup" of MAIN MENU SCREEN and the above screen appears.

AMIBIOS SETUP - STANDARD CMOS SETUP
(C)1995 American Megatrends, Inc. All Rights Reserved

Date (mm/dd/yyyy) : Wed, Mar 20, 1996
Time (hh/mm/ss) : 16:19:52

Floppy Drive A: 3 1/2 ,1.44M
Floppy Drive B: Not Installed

	Type	Size	Cyin	Head	WPcom	Sec	LBA Mode	BLK Mode	P10 Mode	32Bit Mode
Pri Master :	AUTO						ON	ON	ON	AUTO
Pri Slave :	AUTO						ON	ON	ON	AUTO
Sec Master :	AUTO						ON	ON	ON	AUTO
Sec Slave :	AUTO						ON	ON	ON	AUTO

Month :	Jan - Dec	ESC:Exit ↑↓:Sel
Day:	01 - 31	PgUp/PgDn:Modify
Year:	1901-2099	F2/F3:Color

2. Using <↑> ,and <↓> to choose the item. Using <PgUp>, and <PgDn> keys to modify the highlight item.

3. After you have finished with Standard CMOS Setup, press <Esc> to return to the main menu screen.

3.3 Advanced CMOS Setup

1. Press <ENTER> on "Advanced CMOS Setup" of MAIN MENU SCREEN and the screen as below will dispaly.

AMIBIOS SETUP - ADVANCED CMOS SETUP (C)1995 American Megatrends, Inc. All Rights Reserved		
BootUp Sequence	A:,C:,CDROM	Available Options:
PS/2 Mouse Support	Enabled	
System Keyboard	Absent	
Primary Display	EGA/VGA	
Password Check	Setup	
Run OS/2 >= 64M	Disabled	
Internal Cache	Writeback	
External Cache	Enabled	
System BIOS Cacheable	Enabled	
C000,16k Shadow	Enabled	
C800,16k Shadow	Disabled	
CC00,16k Shadow	Disabled	
D000,16k Shadow	Disabled	
D400,16k Shadow	Disabled	ESC: Exit ↑↓:: Sel
D800,16k Shadow	Disabled	PgUp/PgDn: Modify
DC00,16k Shadow	Disabled	F2/F3 : Color

2. Using <↑> ,and <↓> to choose the item. Using <PgUp>,and <PgDn> keys to modify the highlight item.
3. After you have finished with Advanced CMOS Setup, press <Esc> to return to the main menu screen.

A short description of this screen's items follows:

BootUp Sequence The BIOS first attempts to boot from drive A: and then , if unsucceful, from hard disk C: and then from the CD

	this option.
BootUp Num-Lock	Decides if the numeric keypad will be **:ON or OFF** ,used as a number keys or arrow keys.If OFF: the numeric keypad will be used for numbers and the LED will be "OFF.". If ON: the numeric keypad will be used for ARROW functions and the LED will be "ON."
PS/2 Mouse Support	Choose Enabled or Disabled. Enabled has the Auto-detect function of this BIOS detect the existence of the PS/2 mouse. If the PS/2 mouse is installed then IRQ12 willl be assigned to it. If the PS/2 mouse isn't installed the IRQ12 will be released to another card. The Disabled setting has IRQ12 always assigned to another card.
Primary Display	Choose display type: EGA/VGA or MONO
Password Check	Choose Setup, or Always. "Setup" requires a password to enter BIOS setup. "Always" requires a password on Boot Up to load operating system, or enter BIOS Setup.
Run OS/2 >= 64M	Only the system is OS/2 and system memory $\geq$ 64MB. Then this option must be enabled.

Internal Cache	Writeback: enables the CPU's internal cache. Although some CPUs support write-through cache, it degrades performance. Therefore this item has no "Write-through" option.
External Cache	Enable: enables L2 (external cache) Disable: disables L2 cache.
System BIOS	Choose Disabled or Enabled. Chooses whether the system BIOS should be cacheable (F000,64K).
C000,16K Shadow:	Choose whether the ISA ROM and use (C000,16K) should be shadow to (C000,16K).
C800,16K Shadow:	Choose whether the ISA ROM and use (C800,16K) should be shadow to (C800,16K)..
CC00,16K Shadow:	Choose whether the ISA ROM and use (CC00,16K) should be shadow to (CC00,16K)..
D000,16K Shadow:	Choose whether the ISA ROM and use (D000,16K) should be shadow to (D000,16K)..
D400,16K	Choose whether the ISA ROM and

Shadow: use (D400,16K) should be shadow to (D400,16K)..

D800,16K Shadow: Choose whether the ISA ROM and use (D800,16K) should be shadow to (D800,16K)..

DC00,16K Shadow: Choose whether the ISA ROM and use (DC00,16K) should be shadow to (DC00,16K)..

3.4 ADVANCED CHIPSET SETUP

1. Press <ENTER> on "Advanced Chipset Setup" of MAIN MENU SCREEN and the screen as below will dispaly.

AMIBIOS SETUP - ADVANCED CHIPSET SETUP (C)1995 American Megatrends, Inc. All Rights Reserved		
Memory Hole	Disabled	Available option: Disabled 512-640K 15-16M ESC:Exit ↑↓:Sel PgUp/PgDn:Modify F2/F3 : Color
DRAM Timing Setting	Auto	
8Bit I/O Recovery Time (Sysclk)	Disabled	
16Bit I/O Recovery Time (Sysclk)	Disabled	
USB	Disabled	

2. Using <↑> ,and <↓> to choose the item. Using <PgUp>,and <PgDn> keys to modify the highlight item.
3. After you have finished with Advanced Chipset Setup, press <Esc> to return to the main menu screen.

A Short description of the screen's items follows:

Memory Hole 512-640K/15-16M are reserved for the card that has memory for this region. Disable: All on board memory is used by the system. 512-640K: The on board memory in this range will not be used and the OS demands on this region will be passed to the ISA. 15-16M:

The on board memory in this range will not be used and OS demands in this area will be passed to the ISA.

Note: If the memory hole is set for 15-16M and the on board memory is greater than 16M, some testing application will only test 14M and report only 14M memory on the system..

DRAM TIMING: Auto: the system default setting is 60ns for EDO and 70ns for Fast Page. If the memory specifications are different from the Auto: chage the option to manual,and set 60ns or 70ns according the memory installed.

Note : If 60ns and 70ns memory be used at the same time then the dram timing must be set as 70ns.

8 Bit I/O Recovery Time Choose the time (system clock) will be inserted when two continue 8 bit I/O cycle occur.

16 Bit I/O Recovery Time Choose the time (system clock) will be inserted when two continue 16 bit I/O cycle occur.

USB this function is reserved. and the default setting is disabled.

3.5 POWER MANAGEMENT SETUP

1. Press <ENTER> on "Power Management Setup" of MAIN MENU SCREEN and the screen (as below) will dispaly.

AMIBIOS SETUP - POWER MANAGEMENT SETUP (C)1995 American Megatrends, Inc. All Rights Reserved		
Power Management/APM	Disabled	Available Options:
Instant-On Timeout (Minute)	Disabled	Enabled
Video Power Down Mode	Disabled	Inst-ON
Hard Disk Power Down Mode	Disabled	Disabled
Standby Time Out (Minute)	Disabled	
Suspend Time Out (Minute)	Disabled	
IRQ3 Active (at suspend)	Wake Up	
IRQ4 Active (at suspend)	Ignore	
IRQ5 Active (at suspend)	Ignore	
IRQ7 Active (at suspend)	Wake Up	
IRQ9 Active (at suspend)	Ignore	
IRQ10 Active (at suspend)	Ignore	
IRQ11 Active (at suspend)	Ignore	
IRQ12 Active (at suspend)	Wake Up	
IRQ13 Active (at suspend)	Ingnore	
IRQ14 Active (at suspend)	Wake Up	ESC:Exit ↑↓:SEL
IRQ15 Active (at suspend)	WakeUp	PgUp/PgDn:Modify
		F2/F3 : Color

2. Using <↑> ,and <↓> to choose the item. Using <PgUp>,and <PgDn> keys to modify the highlight item.

3. After you have finished with Power Management Setup, press <Esc> to return to the main menu screen.

A short description of this screen's items follows:

Advanced Power Management (APM) Choose Enabled or Disabled. This option enables or disables the green PC features.

Instant-On Timeout (Minute) Choose the time setting for supporting Windows95 Instant-On. This default setting is disabled.

Video Power Down Mode Choose Standby, Suspend, or OFF. The Standby mode truns off the H.Sync of the VGA. The Suspend mode turns off the V. SYNC of the VGA. The OFF mode turns off the VH.SYNC and V.SYNC of the VGA.

Note : this function depend on the VGA card.

HDD Power Down Mode

Standby Timeout (Minute) the time system enter standby will wait.

Suspend Time OUT 1. when the standby mode is disabled and the suspend time is expired the system enter suspend mode from normal mode.
2.when the standby mode is set ,and

system has enter standby mode,then the suspend timers will begin to count. when the suspend time is expired the system enter suspend mode from standby mode.

IRQ3/4/5/7/9/10/11/ 12/13/14 Active (at suspend)

Choose WakeUP or Disabled

1. Reload the Standby Timer countdown the break events occur during the Normal mode.
2. Return back to the Normal mode from the suspend mode.Also reload the Standby and the Suspend Time countdown.

3.6 PCI / PLUG AND PLAY SETUP

1. Press <ENTER> on "PCI/PLUG and PLAY Setup" of MAIN MENU SCREEN and the screen as below will dispaly.

AMIBIOS SETUP - PCI/PLUG AND PLAY SETUP (C)1995 American Megatrends, Inc. All Rights Reserved		
PCI IRQ Priority Auto Setting	Yes	Available Options
1st Available IRQ	IRQ11	
2nd Available IRQ	IRQ10	
3rd Available IRQ	IRQ9	
4th Available IRQ	IRQ12	
PCI VGA Palette Snoop	Disabled	
PCI IDE BusMaster	Disabled	
OffBoard PCI IDE Card	Auto	
OffBoard PCI IDE Primary IRQ	Disabled	
OffBoard PCI IDE Secondary IRQ	Disabled	ESC:Exit ↑↓:Scl
Reserved Memory Size	Disabled	PgUp/PgDn:Modify
Reserved Memory Address	C0000	F2/F3 : Color

2. Using <↑> ,and <↓> to choose the item. Using <PgUp>,and <PgDn> keys to modify the highlight item.
3. After you have finished with PCI/Plug and Play Setup, press <Esc> to return to the main menu screen.

A short description of this screen's items follows:

PCI IRQ Priority Auto Setting Set the PCI IRQ routing priority.
Yes : PCI IRQ routing will be done by BIOS.
No : PCI IRQ routin will according "1st

,2nd,3rd,and 4th Available IRQ" option.

1st Available IRQ Choose the IRQ as first priority for PCI to use.

2nd Available IRQ Choose the IRQ as second priority for PCI to use.

3rd Available IRQ Choose the IRQ as third priority for PCI to use.

4th Available IRQ Choose the IRQ as fouth priority for PCI to use.

PCI VGA Palette Snoop Choose Disabled or Enabled. some graphic controllers, which are not VGA compatible, take the output from a VGA controller and map it to their display as a way to provide the boot information and the VGA compatibility.
However, the color information coming from the VGA controller is drawn from the palette table inside the VGA controller. In order for the graphic controller to generate the proper colors, the graphic controller needs to know what is in the palette of the VGA controller. To do this , the non-VGA graphic controller watches for Write access to the VGA palette registers and snoops the data.

In the PCI based systems where the VGA controller is on the PCI bus and a non-VGA graphic controller is on the ISA bus, the Write access to the palette will not show up on the ISA bus if the PCI VGA controller responds to the Writes. In this case, the PCE VGA controller should not respond to the Write, it should only snoop the data and permit the access to be forwarded to the ISA bus. The non-VGA ISA graphic controller can then snoop the data on the ISA bus. Unless you have the above situations, otherwise you should disable this option.

3.7 PERIPHERAL SETUP

1. Press <ENTER> on "PCI/PLUG and PLAY Setup" and the screen as below will dispaly.

AMIBIOS SETUP - PERIPHERAL SETUP (C)1995 American Megatrends, Inc. All Rights Reserved		
OnBoard FDC	ENABLE	Available
Drive A, B, Exchanged	No	Options:
OnBoard Serial Port1	3F8	Enabled
Serial Port2 Mode	Normal	Disabled
IR Duplex Mode	Full	Auto
OnBoard Parallel Port	378	
Parallel Port Mode	SPP/EPP	
Parallel Port DMA Channel	Disabled	
Parallel Port IRQ	7	ESC:Exit ↑↓:Sel
OnBoard IDE	Both	PgUp/PgDn:Modif
Hard Disk Delay Time	Disabled	F2/F3 : Color

2. Using <↑> ,and <↓> to choose the item. Using <PgUp>,and <PgDn> keys to modify the highlight item.
3. After you have finished with PCI/Plug and Play Setup, press <Esc> to return to the main menu screen.

A short description of this screen's items follows:

OnBoard FDC Choose Enabled or Disabled. This item default setting enables the on-board FDC. If want to use off board FDC (i.e. ISA card) , then choose disabled.

Drive A, B Exchange Choose Enabled or Disabled. The system board supports the diskette

	drive A/B exchange feature. If this item is Enabled, then FDD A becomes FDD B and FDD B becomes FDD A.
OnBoard Serial Port1	Choose COM1 (3F8),COM2 (2F8), COM3 (3E8), or COM4 (2E8) for on board serial port1 to use.
OnBoard Serial Port2	Choose COM1 (3F8), COM2(2F8), COM3 (3E8), or COM4 (2E8) for on board serial port2 to use.
Serial port2 Mode	Choose onboard serial port2 is COMB or Ir function.
IR Duplex Mode	If serial port2 mode is normal then this option is not available. If serial port2 mode is Ir function then full ,half is available is to choose
OnBoard Parallel Port	Choose LPT1 (378), LPT2 (278), LPT3 (3BC) or disabled for onboard parallel port to use
Parallel Port Mode	Choose Extend or Normal. You can set the Parallel Extend Mode only when this item is set to Extended.
Parallel Port DMA Channel	This option can be configured at eitherthe ECP mode or the ECP & EPP mode. These two modes may need to use one DMA channel. Below is the procedure for using the

DMA channel when it is needed.

1. Choose Extended for the Parallel Po mode.
2. Choose ECP or ECP & EPP for the Parallel Extended mode.
3. Choose DMA1 or DMA3 for the Parallel Port DMA.

Parallel Port IRQ

Choose , IRQ 5,7. The interrupt of the on-board parallel port is connected to the chip set and is routed to the IRQ line by the BIOS's program.

OnBoard IDE

Choose Both, Primary, Secondary,or Disabled to enable ,or disable onboard IDE channel (primary ,and secondary)
function. "**Both**" onboard IDE's primary and secondary channel is enabled.
"**Primary**" only primary channel is enabled and secondary channel is disabled.
"**Secondary**" only secondary channel is enabled and primary channel will be disabled. "**Disabled**", both primary and secondary channels will be disabled.

Hard Disk Delay Time

Disabled, 5sec. ,10sec. ,15sec. option
Some hard disk drive need more time to boot ,so choose (i.e. 5sec.) the system will delay 5 second to boot up.

CHAPTER 4 AWARD BIOS USER'S GUIDE

Award's BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed RAM (CMOS RAM) so that it retains the Setup information when the power is turned off.

4.1 Entering Setup

Power on the computer and press <Del> immediately will allow you to enter Setup. The other way to enter Setup is to power on the computer, when the below message appears briefly at the bottom of the screen , press <Del> key.

> TO ENTER SETUP BEFORE BOOT PRESS <DEL> KEY
>
> PRESS <F1> TO CONTINUE, <CTRL-ALT-ESC> OR <DEL> TO ENTER SETUP

4.2 The Main Menu

Once you enter Award BIOS CMOS Setup Utility, the Main Menu (Figure 1) will appear on the screen. The Main Menu allows you to select from ten setup functions and two exit choices. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

Figure 1 Main Menu

ROM PCI/ISA BIOS (2A4IBG33)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	INTEGRATED PERIPHERAL
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT SETUP	IDE HDD AUTO ETECTION
PNP / PCI CONFIGURATION	SAVE & EXIT SETUP
LOAD BIOS DEFAULTS	EXIT WITHOUT SAVING
LOAD SETUP DEFAULTS	
Esc : Quit F10 : Save & Exit Setup	↑↓→← : Select Item (Shift) F2 : Change Color
Time, Date, Hard Disk Type...	

4.3 Standard CMOS Setup Menu

1. Choose "STANDARD CMOS SETUP" from the Main Menu and a screen (as below) with a list of items appears.

2. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to modify the value.

ROM PCI/ISA BIOS (2A5IA000)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

Date (mm:dd:yy) : Fri, Apr 7 1995
Time(hh:mm:ss) : 00:00:00

HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDE	SECTOR	MODE
Primary Master :	None	0	0	0	0	0	0	0
Primary Slave :	None	0	0	0	0	0	0	0
Secondary Master :	None	0	0	0	0	0	0	0
Secondary Slave :	None	0	0	0	0	0	0	0

Drive A : 1.44M ,3. 5in.
Drive B : None
Video : EGA / VGA
Halt On : All Errors

Base Memory : 640K
Extended Memory : 3328K
Other Memory : 128K
Total Memory : 4096K

ESC : Quit
F1 : Help
↑ ↓ → ← : Select Item
(Shift) F2 : Change Color
PU / PD / + / - : Modify

3. If the HARD DISK TYPE is set to Auto, it is not necessary to use IDE HDD AUTO DETECTION. However, if you can not boot up your system when the HARD DISKS TYPE is Auto, then you need to use the IDE HDD AUTO DETECTION.

4. After you have fininshed with this Setup program, press the <ESC> key to return to the Main Menu.

4.4 BIOS Features Setup Menu

1. Choose "BIOS FEATURES SETUP" from the Main Menu and a screen (as below) with a list of items appears.

2. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to modify the value.

ROM PCI/ISA BIOS (2A4IBG33)
BIOS FEATURES SETUP
AWARD SOFTWARE, INC.

Virus Warning : Disabled CPU Internal Cache : Enabled External Cache : Enabled Boot Sequence : A ,C Boot Up Floppy Seek : Enabled Boot Up NumLock Status : On Security Option : Setup	Video BIOS Shadow : Enabled C8000-CFFFF Shadow : Disabled D0000-D7FFF Shadow : Disabled D8000-DFFFF Shadow : Disabled
	ESC : Quit ↑↓→←: Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift) F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults

3. After you have fininshed with this Setup program, press the <ESC> key to return to the Main Menu.

A short description of the screen items follows:

Virus Warning Choose Enabled or Disabled.

Enabled: During and after the system boots up, any attempt to write to the boot sector or partition table of the hard disk drive will halt the system and a error message will appear

Disabled: disable this function.

CPU Internal Cache	Choose Enabled or Disabled. This option enable or disable the CPU's internal cache.
External Cache	Choose Enabled or Disabled. This option enable or disable the L2 cache memory.
Boot Sequence	This option determines which drive computer searches first for the disk operating system . The available setting is "A:,C:',and "C:,A:".
Swap Floppy Drive	Choose Enabled or Disabled. This option swaps drive A: and drive B:.
Boot Up Num Lock Status	Choose On or Off. On puts numeric keypad in Num Lock mode at boot-up. Off puts this keypad in arrow key mode at boot-up.
Typematic Rate Setting	Choose Enabled or Disabled. Enable this option to adjust the keystroke repeat rate.
Typematic Rate (Chars/Sec)	Choose the rate a character keeps repeating.
Typematic Delay (Msec)	Choose the time after you press a key that a character bigins repeating.
Security Option	Choose "System" to prevent unauthorized system boot-up or choose "Setup" to prevent unauthorized use of BIOS Setup.
PCI VGA Palette Snooping	Choose Disabled or Enabled. some graphic controllers, which are not VGA compatible, take the output from a VGA controller and map it to their display as a way to provide the

boot information and the VGA compatibility. However, the color information coming from the VGA controller is drawn from the palette table inside the VGA controller. In order for the graphic controller to generate the proper colors, the graphic controller needs to know what is in the palette of the VGA controller. To do this , the non-VGA graphic controller watches for Write access to the VGA palette registers and snoops the data. In the PCI based systems where the VGA controller is on the PCI bus and a non-VGA graphic controller is on the ISA bus, the Write access to the palette will not show up on the ISA bus if the PCI VGA controller responds to the Writes. In this case, the PCE VGA controller should not respond to the Write, it should only snoop the data and permit the access to be forwarded to the ISA bus. The non-VGA ISA graphic controller can then snoop the data on the ISA bus. Unless you have the above situations, otherwise you should disable this option.

4.5 Chipset Features Setup Menu

1. Choose "CHIPSET FEATURES SETUP" from the Main Menu and a screen (as below) with a list of items appears.

2. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to modify the value.

ROM PCI/ISA BIOS (2A4IBG33)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

DRAM Timing : 70ns ISA Clock : PCICLK/4	
	ESC : Quit ↑↓→←: Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift) F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults

3. After you have fininshed this Setup program, press the <ESC> key to return to the Main Menu.

A short description of the screen items follows:

DRAM Timing Choose 70ns or 60ns depend on the DRAM used.

ISA CLOCK Choose ISA clock equal = PCI clock divide 3 or divide 4.

4.6 Power Management Setup

1. Choose "POWER MANAGEMENT FEATURES SETUP" from the Main Menu and a screen (as below) with a list of items appears.

2. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to modify the value.

ROM PCI/ISA BIOS (2A4IBG33)
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

Power Management /APM : Disabled	
PM Control by APM : Yes	** Power Down & Resource Events **
Video Off Method : V/H SYNC + Blank	IRQ3 (COM 2) : Off
	IRQ4 (COM 1) : On
Doze Mode : Disabled	IRQ5 (LPT 2) : Off
Standby Mode : Disabled	IRQ6 (Floppy Disk) : On
Suspend Mode : Disabled	IRQ7 (LPT 1) : ON
HDD Power Down : Disable	IRQ8 (RTC Alarm) : Off
	IRQ9 (IRQ2 Redir) : On
** Wakeup Events in Doze & Standby **	IRQ10 (Reserved) : Off
IRQ 3 :OFF	IRQ11 (Reserved) : Off
IRQ 4 :ON	IRQ12 (PS/2 Mouse) : On
IRQ 8 :ON	IRQ13 (Coprocessor) : Off
IRQ 12 :ON	IRQ14 (Hard Disk) : ON
	IRQ15 (Reserved) : ON
	ESC: Quit ↑↓→←: Select Item
	F1 : Help PU / PD / + / - : Modify
	F5 : Old Values (Shift)F2 : Color
	F6 : Load BIOS Defaults
	F7 : Load Setup Defaults

3. After you have fininshed this Setup program, press the <ESC> key to return to the Main Menu.

A short description of the screen items follows:

Power Management	Choose Disabled or Others. If choose Disabled, the system does not obtain the functions of Green Function; and if choose Others, the system not only has the Green Function but also has the choices of the Green Timer.
PM Control by APM	Choose Yes or NO. Choose Yes when the operating system has the APM functionl, choose No otherwise.
Video Off Method	Choose Blank Screen, DPMS, or V/H Sync+Blank. Choose either DPMS or V/H Sync+Blank when the monitor has the Green function. Choose Blank when the monitor has not the Green function .
Standby Mode **Suspend Mode**	Choose the mode for the different timers. The Standby Mode turns off the VGA monitor.And the Suspend Mode turns off the CPU and saves the energy of the system.
Wakeup Events in Doze & Standby	The system will wakeup from the Standby Mode when any of the options below occurs.
Power Down & Resume Events	The system will enter the Power Down Mode when any of the options below occurs.

4.7 PNP/PCI Configuration

1. Choose "PNP/PCI CONFIGURATION " from the Main Menu and a screen (as below) with a list of items appears.

2. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to modify the value.

ROM PCI/ISA BIOS (2A4IBG33)
PNP/PCI CONFIGURATION
AWARD SOFTWARE, INC.

Resource Controlled by :Manual IRQ-3 assigned to :Legacy ISA IRQ-4 assigned to :Legacy ISA IRQ-5 assigned to :PCI/ISA PnP IRQ-7 assigned to :Legacy ISA IRQ-9 assigned to : PCI/ISA PnP IRQ-10 assigned to : PCI/ISA PnP IRQ-11 assigned to : PCI/ISA PnP IRQ-12 assigned to : PCI/ISA PnP IRQ-14 assigned to :Legacy ISA IRQ-15 assigned to :Legacy ISA DMA-0 assigned to :PCI/ISA PnP DMA-1 assigned to :PCI/ISA PnP DMA-3 assigned to :PCI/ISA PnP DMA-5 assigned to :PCI/ISA PnP DMA-6 assigned to :PCI/ISA PnP DMA-7 assigned to :PCI/ISA PnP	ESC: Quit ↑↓→←: Select Item F1 : Help PU / PD / + / - : Modify F5 : Old Values (Shift)F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults

3. After you have fininshed this Setup program, press the <ESC> key to return to the Main Menu.

A short description of the screen items follows:

Resources Controlled by	Choose Manual or Auto. The BIOS will check the IRQ/DMA channel number on the ISA and PCI card automatically, and if choose Manual, the IRQ/DMA channel number needs to be checked manually.
IRQ-3~DMA-7 assigned to	Choose Legacy ISA or PCI/ISA PnP. If ISA card has no Plug & Play function then choose Legacy ISA..

4.8 LOAD SETUP DEFAULT

This item loads the default system values. If the CMOS is corrupted the defaults are loaded automatically. Choose theis item and the following message appears:

"Load Setup Defaults (Y/N) ? N"

To use the Setup defaults, change the prompt to "Y" and press <Enter>.

4.9 INTEGRATED PERIPHERALS

1. Choose "INTEGRATED PERIPHERALS " from the Main Menu and a screen (as below) with a list of items appears.

2. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to modify the value.

ROM PCI/ISA BIOS (2A4IBG33)
PNP/PCI CONFIGURATION
AWARD SOFTWARE, INC.

IDE HDD Block Mode	:Enabled	
IDE Primary Master PIO	:Enabled	
IDE Primary Slave PIO	:Enabled	
IDE Secondary Master PIO	:Auto	
IDE Secondary Slave PIO	:Auto	
On-Chip Primay PCI IDE	:Auto	
On-Chip Secondary PCI IDE	:Auto	
Onboard FDD Controller	:Enabled	
Onboard Serial Port 1	:3F8/IRQ4	
Onboard Serial Port 2	:2F8/IRQ3	ESC: Quit ↑↓→←: Select Item
UART 2 Mode	:Standard	F1 : Help PU / PD / + / - : Modify
Onboard Parallel Port	:378H/IRQ 7	F5 : Old Values (Shift)F2 : Color
Onboard Parallel Mode	:SPP	F6 : Load BIOS Defaults
		F7 : Load Setup Defaults

3. After you have fininshed this Setup program, press the <ESC> key to return to the Main Menu.

A short description of the screen items follows:

IDE HDD Block Mode Choose Disabled or Others. If hard disk size is larger than 540MB, choose Enabled; and if the hard disk size is smaller than 540MB, check with hard disk vendor to decide which one to be chosen. And , if using the IDE HDD Auto Detection option, the BIOS will

	choose this option automatically
Onchip Primary/Secondar IDE	If using ISA IDE, need to choose Disabled Primary or Secondary PCI IDE.
IDE Primary Master PIO	Choose Auto or Mode 0`4. The BIOS will detect the HDD Mode type automatically when you choose Auto. You need to set to a lower mode than Auto when your hard disk becomes unstable.
Onboard FDD Controller	Choose Disabled or Enabled. Choose Disabled when use an ISA card with FDD function, or else, choose Enabled to use the onboard FDD connector.
Onboard Serial port1	Choose 3F8/IRQ4,2F8/IRQ3,3E8/IRQ4,2E8/IRQ3, or Disabled. Choose Onboard COM1 connector to use I/O port address/IRQ for 3F8/IRQ4, or others

4.10 Supervisor/User Password Setting

This setting let you configure the system so that a password is require each time the system boots or an attemp is made to enter the Setup program. Supervisor Password allows you to change all CMOS settings but the User Password setting doesn't have this function if you have set the Supervisor Password. The way to set up the password is as follows:

1. Choose "Supervisr Password" or "User Password" in the Main Menu and press <Enter>. the following message appears:

   "ENTER PASSWORD:"

2. The first time run this option, enter password up to only 8 characters and press <Enter>. The screen does not dispaly the entered characters. For no password just press <Enter>.

3. After enter the password, the following message appears prompting to confirm the password:

   "Confirm Password:"

4. Enter exact the same password ypu just typed again to confirm the password and press <Enter>.

5. Move the cursor to Save & Exit Setup to save the password.

6. If you need to delete the password entered before, choose the Password and press <Enter>. It will delete the password that you had before.

7. Move the cursor to Save & Exit Setup to save the option you did, otherwise the old password will still be there when you turn on you machine next time.

4.11 IDE HDD Auto Detection

You can use this utility to automatically detect most of hard drives.

When you enter this utility, the screen asks you to select a specific hard disk for Primary Master. If you accept a hard disk detected by the BIOS, you can enter "Y" to confirm and then press <Enter> to check next hard disk. This function allows you to check four hard disks and you may press the <Esc> after the <Enter> to skip this function and go back to the Main Menu.

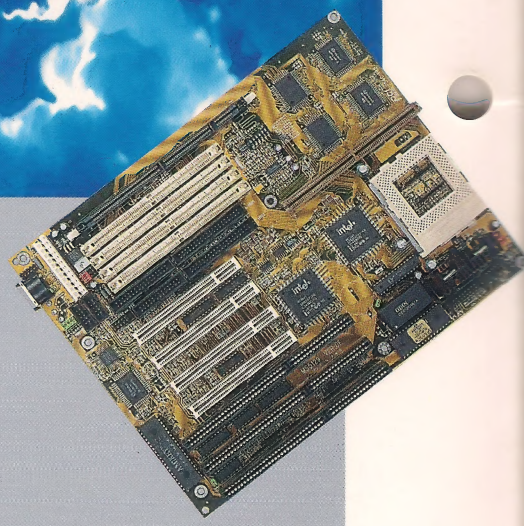
ROM/PCI/ISA BOPS (2XXXXXXX)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

HARD DISKS TYPE SIZE CYLS HEAD PRECOMP LANDZ SECTOR MODE
Primary Master :

Select Primary Master Option (N = Skip) : N

OPTION	SIZE	CYLS	HEADS	PRECOMP	LANDZONE	SECTORS	MODE
1(Y)	516	1120	16	65535	1119	59	NORMAL
2	516	524	32	0	1119	63	LBA

PCI PENTIUM® TR5 MAINBOARD



USER'S MANUAL

PART NO. YM5129
MODEL NO. MS-5129
PRINTED IN TAIWAN